Active Arterial Management in Miami-Dade and Monroe Counties

2020 FLPRITE Winter Workshop
February 28, 2020

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Agenda

- District Six Overview
- District TSM&O Program Update
- Active Arterial Management
Miami-Dade and Monroe Counties

- Population:
  - 2.8 million residents
  - 16.9 million visitors

- Coverage:
  - 700 centerline miles
  - 270 centerline miles of ITS coverage

- 8 Actively Managed Limited Access Facilities and Roadways
- 2 Actively Managed Arterial Corridors
- Miami is one of the Top Ten Most Congested Cities in U.S.
SunGuide Transportation Management Center (TMC)

- Command and Control Center
- Collocated Agencies
  - Existing: FHP, MDX, FFWC
  - Future: Miami-Dade County, City of Miami Beach
- 24/7/365 Operations
- Services:
  - Freeway Management
  - Arterial Management
  - Incident Management
  - Traveler Information
District Six TSM&O Program Highlights

- Operations Program Experiencing Consistent Growth
- On-Going Regional Express Lanes Network Expansion
- Expanding Services to Support Arterial Operations
- Early Stages of Connected Vehicle Deployments
ASCT Pilot Projects

Traffic Signal Operations & Maintenance
- Monroe County
- City of Key West
- Miami-Dade County TSMCA
- Signal Retiming

Arterial ITS Deployments

Arterial Incident Management
- Rapid Incident Scene Clearance (RISC)

Connected Vehicle Applications (Planned)
Adaptive Signal Control Technology (ASCT) Pilot Projects
Overview

- Partnership with Miami-Dade County
- Operations Began: April 2017
- 30 Signalized Intersections
  - From SW 67 Avenue to SW 142 Avenue (approximately 7.5 miles)
Year-One Evaluation

- **SW 8th Street**
  - Travel Time Improved - 3.65% to 12.50%
  - Total Delay Reduced - 11.80%
  - Crash Frequency Reduced - 9.73%
  - Throughput Increased - 5% to 6%

- **Cross Streets**
  - Total Delay Reduced - 9.80% to 23.50%
  - Crash Frequency Reduced - 4.05% to 11.60%

- **Benefit-Cost**
  - 3.7 to 8.4
Lessons Learned/Key Success Factors

• Dedicated Arterial Operations Staff is Critical
• Availability of Qualified Maintenance Staff
• Heightened Coordination with Miami-Dade County Traffic Signals and Other Partners
• Continuity of Traffic Engineering Support by ASCT Vendor Post-Construction
• Organizational Emphasis on Performance Measures and Reporting
• Hurricane Preparedness
• Management Support
Overview

- 15 Signalized Intersections
  - MD 660X Traffic Controller Cabinets
  - 2070 LX Controller with ATMS software and ASCT system
  - Vehicle Video Detection System
  - Ethernet Based Fiber Optic Cable and Wireless Communications
- Test Bed for Future Connected Vehicle Applications
- Anticipated Completion Date: April 2020
Traffic Signal Operations & Maintenance
Overview

- FDOT District 6 Assumed Operations & Maintenance: July 2018
- Partnership Monroe County, Islamorada Village of Islands & City of Marathon
- 17 Traffic Signals, 8 Emergency Signals & Other Devices
- Approximately 100 Miles
Readiness Plan

- Stakeholder Meetings for Successful Transition
- Established Standard Operating Guidelines
- Infrastructure Upgrades
  - Wireless Routers, 2070 LX Controllers, UPS
- Control Room Redesign
  - Dedicated Arterial Workstations
  - Arterial Support Staff
  - ATMS
- Supplemented Existing ITS Maintenance Contract
Overview

• 17 Traffic Signals
• 5 Pedestrian Hybrid Beacons (HAWK)
• 2 School Zone Beacons
• 2 Advance Warning Beacons
• 1 Emergency Signal
• O&M Start Date: July 2020

Readiness Plan

• Stakeholder Coordination
• Infrastructure Upgrades
• Law Enforcement Training
Overview

- 1,329 Traffic Signals
- 128 Pedestrian Flashing Beacons
- 70 Speed Activated Warning Displays
- 61 Traffic Warning Beacons/Flashing Signs
- 11 Emergency Fire Department Signs
- Established New Joint Procedures
  - Preventive Maintenance Spot Inspections
  - Damage Reimbursements
Overview

- Retiming 1300+ Signals Within A Three-year Cycle
- Retiming Goal: Improve Travel Times And Speed Along The Corridors
- Efficient Retiming Approach: Primarily “Fine-tuning Approach” During Peak Times
- Traditional Retiming (Data Collection With Hose Counts And TMC’s, Synchro Modeling, Fine-tuning) And Other Peak Periods On A Case-by-case Basis
- Close Coordination With Local Agencies
Overview

• Existing Projects
  • US-1 in Miami-Dade County

• Future Projects
  • US-1 in Miami-Dade & Monroe Counties
  • Krome Avenue
  • Okeechobee Road

FDOT Continues to Look for Opportunities to Expand Arterial Operations on Strategic Corridors
Arterial Incident Management
Rapid Incident Scene Clearance (RISC)

Overview

• Miami-Dade Operations Began: January 2012
  • Krome Avenue, Okeechobee Road, MacArthur Causeway
  • Total Activations Since Launch: 11

• Monroe County Operations Began: September 2019
  • US 1, from MM 5.5 to MM 127
  • Total Activations Since Launch: 1
Boiler Plate Contract Modified to Support Corridor Configurations

- Unique Road Characteristics & Infrastructure
  - Segmented Response Times Developed for US-1 Corridor’s Challenging Geometry
    - Limited Turn-Around Points, Fewer Travel Lanes, Bridges
- Limited Availability of Resources
  - Contract Required Additional Equipment for Clearance Assistance Efforts
    - Tank Tapping Equipment & Accessories to Transfer Liquids
- RISC Activation Authorization
  - Florida Highway Patrol (FHP)
  - Monroe County Sheriff’s Office (MCSO)
  - FDOT Authorized Representatives
Connected Vehicle Applications (Planned)
Keys COAST

- Partnership with Local Stakeholders in Miami-Dade and Monroe County
- Advertisement: August 2020
- US-1 in Monroe County, Approximately 112.5 miles
Proposed Project ARC-IT Service Package

- CV Traffic Signal System - TM04
- Pedestrian and Cyclist Safety - VS12
- V2V Basic Safety - VS02
- Drawbridge Management - TM18
- Transit Signal Priority - PT09
- Emergency Vehicle Preemption - PS03
- Freight Signal Priority - CVO06
- Smart Roadside and Virtual Weigh in Motion (WIM) – CVO08

Source: https://local.iteris.com/arc-it/html/servicepackages/servicepackages-areaspsort.html
Keys COAST Pilot Project (Timeline)

2019
- Systems Engineering
- Project Development
- Stakeholder Coordination

2020
- Procurement
- Initiate Before Study

2021
- Project Letting
- Begin Project Deployment

2022
- Project Deployment
- Integration and Testing

2023
- Project Operational
- After Study/Evaluation
Questions?